Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): A stem cell expansion factor comprising a blocker which reduces expression level of at least one gene normally limiting HOX- induced expansion of stem cells, whereby reducing expression level of said gene enhances expansion of stem cells containing a HOX peptide.

Claim 2 (original): The stem cell expansion factor of claim 1, wherein said blocker is selected from the group consisting of an antisense, an antibody, a SiRNA, a peptide and a chemical compound.

Claim 3 (original): The stem cell expansion factor of claim 1, wherein said gene is a PBX gene.

Claim 4 (original): The stem cell expansion factor of claim 3, wherein said blocker is a nucleic acid sequence blocking PBX expression.

Claim 5 (original): The stem cell expansion factor of claim 4, wherein said blocker is an antisense DNA to PBX1.

Claim 6 (original): The stem cell expansion factor of claim 1, wherein said blocker is a PBX1 expression blocker.

Claim 7 (original): The stem cell expansion factor of claim 1, wherein said stem cells are hematopoietic stem cells.

Claim 8 (original): The stem cell expansion factor of claim 7, wherein said hematopoietic stem cells are human or mouse hematopoietic stem cells.

Claim 9 (original): A nucleic acid construct for enhancing stem cells expansion, said construct comprising a first nucleic acid sequence for expression of a HOX peptide, wherein said peptide being able to cross a cell membrane, and a second nucleic acid sequence blocking expression of at least one gene normally limiting HOX-induced expansion of stem cells, whereby reducing expression level of said gene in the presence of a HOX peptide enhances expansion of stem cells.

Claim 10 (original): The construct of claim 9, wherein said gene is a PBX gene.

Claim 11 (original): The construct of claim 9, wherein said HOX peptide is a HOXB4 peptide.

Claim 12 (original): The construct of claim 9, wherein said stem cells are hematopoietic stem cells.

Claim 13 (original): The construct of claim 12, wherein said hematopoietic stem cells are human or mouse hematopoietic stem cells.

Claim 14 (original): The construct of claim 10, wherein said second nucleic acid sequence blocking PBX expression is an antisense DNA to PBX1.

Claim 15 (original): A composition for enhancing expansion of stem cells comprising an amino acid sequence having the activity of a HOX peptide, wherein said peptide being able to cross a cell membrane, and a blocker which reduces expression level of at least one gene normally limiting HOX-induced expansion of stem cells, whereby reducing expression level of said gene in the presence of a HOX peptide enhances expansion of stem cells.

Claim 16 (original): The composition of claim 15, wherein said gene is a PBX gene.

Claim 17 (original): The composition according to claim 15, wherein said amino acid sequence consists of a HOXB4 peptide.

Claim 18 (original): The composition according to claim 15, wherein said amino acid sequence comprises an HIV-derived peptide able to cross a cell membrane.

Claim 19 (original): The composition according to claim 18, wherein said HIV-derived peptide consists of a NH2-terminal protein transduction domain (PTD) from a transactivating protein.

Claim 20 (original): The composition according to claim 15, wherein said stem cells are hematopoietic stem cells.

Claim 21 (original): The composition according to claim 20, wherein said hematopoietic stem cells are human or mouse hematopoietic stem cells.

Claim 22 (original): The composition according to claim 16, wherein said blocker is a nucleic acid sequence blocking PBX expression.

Claim 23 (original): The composition according to claim 22, wherein said blocker is an antisense DNA to PBX1.

Claim 24 (original): A composition for enhancing expansion of stem cells comprising a nucleic acid sequence for over-expression of a HOX peptide, and a blocker which

reduces expression level of at least one gene normally limiting HOX-induced expansion of stem cells, whereby reducing expression level of said gene in the presence of a overexpressed HOX peptide enhances expansion of stem cells.

Claim 25 (original): The composition of claim 24, wherein said gene is a PBX gene.

Claim 26 (original): The composition according to claim 24, wherein said HOX peptide is a HOXB4 peptide.

Claim 27 (original): The composition according to claim 24, wherein said stem cells are hematopoietic stem cells.

Claim 28 (original): The composition according to claim 27, wherein said hematopoietic stem cells are human or mouse hematopoietic stem cells.

Claim 29 (original): The composition according to claim 24, wherein said blocker is a nucleic acid sequence blocking PBX expression.

Claim 30 (original): The composition according to claim 29, wherein said blocker is an antisense DNA to PBX1.

Claim 31 (currently amended): A method for enhancing expansion of stem cells, which comprises treating stem cells with an effective amount of a factor as defined in ~~any one of~~ claims 1 ~~to 8~~, or an effective amount of a composition as defined in ~~any one of~~ claims 15 ~~to 30~~ for a time sufficient to allow expansion of said stem cells.

Claim 32 (original): The method of claim 31, wherein said HOX peptide is a HOXB4 peptide and said gene is PBX.

Claim 33 (original): The method of claim 31, further comprising a step of treating said stem cell with an amino acid sequence having the activity of a HOX peptide encoded by a HOX nucleotide sequence.

Claim 34 (original): The method of claim 33, wherein said amino acid sequence consists of a HOXB4 peptide.

Claim 35 (currently amended): The method of claim 33 ~~or 34~~, wherein said amino acid sequence comprises an HIV-derived peptide able to cross a cell membrane.

Claim 36 (original): The method of claim 35, wherein saidHIV-derived peptide consists of a NH2-terminal protein transduction domain (PTD) from a transactivating protein.

Claim 37 (original): The method of claim 31, wherein said stem cells are hematopoietic stem cells.

Claim 38 (original): The method of claim 37, wherein said hematopoietic stem cells are

human or mouse hematopoietic stem cells.

Claim 39 (original): The method of anyone of claims 31 to 38, wherein said stem cells are treated *in vitro*, *in vivo* or *ex vivo*.

Claim 40 (canceled).

Claim 41 (New): A method for restoring hematopoietic capability of a patient, which comprises administering a therapeutical effective amount of a factor as defined in claim 1.

Claim 42 (New): A method for restoring hematopoietic capability of a patient, which comprises administering a therapeutical effective amount of a construct as defined in claim 9.

Claim 43 (New): A method for restoring hematopoietic capability of a patient, which comprises administering a therapeutical effective amount of a composition as defined in claim 15.

Claim 44 (New): A method for enhancing expansion of stem cells, which comprises treating stem cells with an effective amount of a factor as defined in claim 15 for a time sufficient to allow expansion of said stem cells.

human or mouse hematopoietic stem cells.

Claim 39 (original): The method of anyone of claims 31 to 38, wherein said stem cells are treated *in vitro*, *in vivo* or *ex vivo*.

Claim 40 (canceled): Use of a factor as defined in any one of claims 1 to 8, or a construct as defined in any one of claims 9 to 14, a composition as defined in any one of claims 15 to 30 for the preparation of a medicament for restoring hematopoietic capability of a patient.

Claim 41 (New): A method for restoring hematopoietic capability of a patient, which comprises administering a therapeutical effective amount of a factor as defined in claim 1.

Claim 42 (New): A method for restoring hematopoietic capability of a patient, which comprises administering a therapeutical effective amount of a construct as defined in claim 9.

Claim 43 (New): A method for restoring hematopoietic capability of a patient, which comprises administering a therapeutical effective amount of a composition as defined in claim 15.

Claim 44 (New): A method for enhancing expansion of stem cells, which comprises treating stem cells with an effective amount of a factor as defined in claim 15 for a time sufficient to allow expansion of said stem cells.